

ABSTRACT OF THE DISCLOSURE

5 An apparatus for non-intrusively sensing fluid flow within a pipe is provided. The apparatus includes a first sensing array for sensing acoustic signals traveling at the speed of sound through fluid flow within the pipe, a second sensing array for sensing local pressure variations traveling with the fluid flow, and a housing attached to the pipe for enclosing the sensing arrays. The first sensing array includes a plurality of first optical pressure sensors and the second sensing array includes a plurality of second optical pressure sensors.